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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/071,505

02/08/2002

Ingrid Henriksen

NIDN-10439

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11/01/2006

GE HEALTHCARE, INC.

IP DEPARTMENT

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PRINCETON, NJ 08540-6231

EXAMINER

WILLIAMS, LEONARD M

ART UNIT

PAPER NUMBER

1617

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/071,505

Applicant(s)

HENRIKSEN ET AL.

Examiner

Leonard M. Williams

Art Unit

1617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5-7, 11, 12 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-7, 11, 12 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

Detailed Action

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/22/2006 has been entered.

***Response to Amendment/Arguments***

Claims 1,3, 5-9, 11-17, 19 are pending. Claims 8-9, 13-17 stand withdrawn.  
Claim 1 has been amended.

Claims 1,3, 5-7, 11-12, 19 are pending.

Applicant's arguments with respect to the rejected claims have been considered but are not persuasive.

In response to applicant's argument, on page 7 of the remarks/arguments, that "the motive of controlling administration rate and period is hence different from the motive of the present invention", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant has argued that the contrast agent of Unger is typically administered over a period of 5 seconds to 50 seconds (Response at page 7, 1st para). Unger explicitly disclaims any specific rates to be the exhaustive rate limitation.

Unger further elaborates on factors that determine the ultimate rate. Accordingly, modifications of the rate of administration would have been well within the purview of one of ordinary skill in the art.

Applicant also argues that Unger's reference to "continuous infusion" is directed to the administration of the flushing medium, not the contrast agent. (see/d.). In response, Examiner cannot find applicant's scientific or legal rational for such interpretation. Unger clearly states that his composition comprising the contrast agent is administered by continuous infusion (see col 64, lines 25-28). Unger further describes the scope of the term "administration" at col 9, lines 4-10 to include both the administration of the composition and/or the flushing agent. Finally, Unger elaborates on a suitable rate of administration. Thus, Applicant's arguments are not persuasive.

Applicant then argues that Unger's mode of administration and positioning of the delivery vessel are merely incidentally overlap with the scope of the instant claims and there is no evidence that Unger's method would enhance product homogeneity (see Arguments at page 7, 2nd para.). In response, Examiner states that since Unger teaches all elemental steps of the instant claims, the intended purpose of the claims are also achieved. Further, whether Unger incidentally teaches the instantly claimed mode of administration is irrelevant, because irrespective of Unger's intention, the elemental steps of the instant claims are described by Unger.

Unger discloses similar method steps as those instantly claimed except the instantly recited duration of infusion. There is no evidence on record or in the art that would discourage one of ordinary skill in the art to modify and optimize duration of infusion to improve the quality of imaging process. Accordingly, Examiner states that the mere fact that there is an alternative means of improving ultrasound imaging, as described by Unger, does not preclude optimization of Unger's infusion rates that would render the instantly recited infusions rate obvious.

Generally, "disclosed examples and preferred embodiments do not constitute a teaching which is away from a broader disclosure or nonpreferred embodiments." In re Susi, 169 USPQ 423 (CCPA 1971). "In general, a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the results sought by the applicant." In re Gurley, 31 USPQ2d 1130, 1131-2 (Fed. Cir. 1994). Accordingly, consistent with the rulings in In re Gurley, there is no evidence presented on record that modifying administration rate of Unger would have been unlikely to produce productive results within the scope of the instant claims.

Examiner adds that Unger explicitly states that any exemplified rate is for purposes of illustration not for purposes of limitation. (see col 45, lines 25-28).

Therefore, Examiner concludes that a person of one ordinary skill, upon reading the teachings of Unger, would have been motivated to increase the rate until a desired effect is achieved. Enhancing the quality of ultrasound images is certainly a well-documented desired effect regardless of the instantly recited intended purpose of "enhancing product homogeneity." Once the rate of Unger is optimized to reach 5-60

minutes, the ultrasound images would have been improved and the instantly intended purpose would have been accomplished. Applicant has not provided any evidence to show the contrary.

Finally, the recitation of intended use here, "enhancing product homogeneity" does not impart the instant claims patentable over the cited prior art. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478,481 (CCPA 1951). Here, the only difference in the process steps is the duration of administration, which has been described by Unger to be an optimizable parameter. Therefore, the instantly recited intended use does not modify the process steps.

Applicant also argues that Unger's mode of administration and positioning of the delivery vessel are merely do not suggest methods of enhancing product homogeneity (see Remarks at page 4, 2nd para.). In response, Examiner states that since Unger teaches all elemental steps of the instant claims, the intended purpose of the claims are also achieved.

The 103(a) rejection of the prior office action is maintained as it encompasses the claims as amended and for reasons of record. The rejections are reproduced below.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1,3, 5-7, 11-12, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Unger US Patent 6,033,645.

Unger discloses methods of administering a gaseous contrast agent comprising administering the contrast agent and a flushing agent from two different vessels into tubing that enters an upper extremity of a patient. (see figures 1-2; abstract, col 6, line 49-col 7, line 20; col 53, lines 35-67). The rates of infusion of Unger fall within the scope of the instant limitation of claim 1, "controllably," because it falls within the ranges that are described by Unger (see col 44-47). Unger claims delivery of his contrast agent in a continuous infusion (col 64, lines 20-29). The position of the syringe carrying the contrast agent in Unger is vertical (see figure 1). Unger uses the piston of the syringe as the driver (see element 18 of figure 1 ).

The flushing agent of Unger is normal saline (col 49, lines 53-55; col 57, line 9).

The flushing step of Unger allows complete transport of the gaseous contrast agent into the bloodstream; thus, at least a portion of the contrast agent of Unger is mixed with the flushing agent of Unger prior to administration into the subject. (col 47, lines 60-col 48, line 10). Unger further explicitly teaches flush rates that fall within the scope of the instant claim 19 (col 48, line 64-col 49, line 25).

Unger claims administration of sulfur hexafluoride and perfluorocarbon filled vesicles such as perfluorobutane as his contrast agent (see examples, also col 57, lines 9-21). The vesicles of Unger include albumin-stabilized microbubbles (see col 35, line 53-col 36, line 30). Thus, limitations of claims 5-7, 11-12 are also met.

Even though, Unger fails to explicitly recite the instantly claimed infusion period of 5-60 minutes, he explicitly places one of ordinary skill in the art at notice that the rate of administration can be optimized based on the volume of the composition, gaseous vesicles, type of encapsulation and other patient variable such as age, area of interest, etc... Unger makes such statements at numerous places in his patent. For example,

Unger at col 45 states:

The compositions may be administered over a period of time which can vary and depends upon a variety of factors including, for example, the volume of the composition being administered, the age and weight of the patient, the particular materials employed in the compositions, including, for



example, lipids, polymers, proteins, vesicles, gases and/or gaseous precursors, the purpose for the administration (for is example, diagnostic or therapeutic), the region of interest, the mode of administration, the size of the vesicles (in the case of vesicle compositions), and the like. An exemplary adm/n/stration time for the compositions described above is about 5 seconds. Dividing the gas dose by this time period 20 provides a gas administration rate which can be expressed as cc gas/Kg-sec. Thus gas dose of, for example, about  $1 \times 10^{-4}$  cc gas/Kg and an administration time of 5 sec provides a gas administration rate of about  $2 \times 10^{-5}$  cc gas/Kg-sec.

It is to be understood that the foregoing specific gas concentrations, composition doses, administration times and administration rates are for purposes of illustration only, and not for purposes of limitation.

Note that Unger states that any exemplified rate is for purposes of illustration not for purposes of limitation. (see col 45, lines 25-28).

At col 47 Unger explicitly states that

As would be apparent to one skilled in the art, based on the present disclosure, the rate at which the lipid and/or vesicle compositions are preferably administered can vary,

depending, for example, on the lipids, polymers, proteins, vesicles, gases and/or gaseous precursors employed, the age and the weight of the patient, the mode of administration, the size of the vesicles (in the case of vesicle compositions), and the like. Typically, administration may be carried out at lower rates and the rate can be increased until a desired effect is achieved.

Thus, as encouraged by Unger modifying the rate of administration to observe a desired clinical effect is within the scope of the teaching of Unger.

Subsequently, absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the rate of administration of the contrast agent of Unger by routine experimentations and enhance the quality of images, because Unger explicitly recites the rate dependent factors. Thus, one of ordinary skill in the art would have had a reasonable expectation of success in achieving optimal images by determining the optimal rate of infusion.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard M. Williams whose telephone number is 571-272-0685. The examiner can normally be reached on MF 9-5:30.

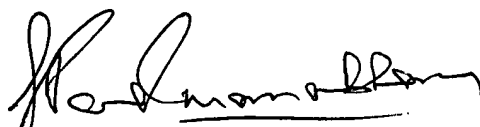
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan can be reached on 571-272-0629. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LMW



**SREENI PADMANABHAN**  
**SUPERVISORY PATENT EXAMINER**